UNITED STATES PATENT AND TRADEMARK OFFICE

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10/720,155	11/25/2003	Masayuki Koshino	245821US90	9641

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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 February 2011</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>11,12,15-17,20,21,23 and 24</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>11,12,15-17,20,21,23 and 24</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   The factual inquiries set forth in Graham **v.** John Deere Co., 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness
        or nonobviousness.

3.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4.   Claims 11, 12, 15, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Widegren, and further in view of Haumont (United States Patent No.: US 7,802,011 B2).

Consider claim 11, Widegren teaches a radio access network system (UTRAN, comprised of Node B and RNC) for transferring user data in a radio access network, comprising:

a base station (Node B) configured receive an IP packet including the user data from a mobile station(UE or MS) via a radio channel in the radio access network; and a control apparatus (RNC or radio network controller) configured to control the base station, wherein, the mobile station is configured to transmit a transfer path setting request (Activate PDP Context Request, step 2 in figure 18 and paragraph 96), for requesting to set a transfer path of the user data, to a core network via the radio access network, and the control apparatus includes:

a receiving unit (inherently taught by the RNC receiving a RAB Assignment Request) configured to receive a transfer path assignment request (RAB Assignment Request, step 3 in figure 18 and paragraph 97) for requesting to assign the transfer path of the user data, from the core network (3G-SGSN),

a transfer path setting unit configured to set the transfer path of the user data, in accordance with the transfer path assignment request (RNC determines RAB set up, paragraphs 98-99),

a priority setting unit configured to set an IP priority for the transfer path such that IP packet data transmitted from the base station along the transfer path to the control apparatus is processed according to the IP priority set for the transfer path by the transfer path setting unit (based on the RAB Assignment Request including the negotiated RAB QoS attributes, the RNC determines the radio-related parameters for the transfer path, see FIG. 18 and

paragraph 98), and

a transmitting unit configured to transmit, to the base station, a radio channel setting request for requesting to set the radio channel, the radio channel setting request including the IP priority set by the priority unit (the RNC has to communicate the base station the parameters that the base station will use in setting up a radio bearer with the mobile station as shown by steps 5 and 6 in figure18 and paragraphs 99 and 100),

wherein the base station sets a priority for the IP packet including the user data based to the IP priority set by the priority setting unit and transfers the IP packet including the user data to the core network according to the IP priority (after steps 1-8 in Fig. 18, a transfer path is set in the core network according to the previously negotiated QoS in the radio access network (steps 9-11 in Fig. 18, paragraphs 103-105).

However Widegren does not expressly disclose that the control apparatus includes a priority determination table for associating a traffic class with the IP priority, the priority determination table determines DCP and ToS priority of IP packets based on a traffic class regarding a Radio Access Bearer, and traffic classed as conversational or streaming, which belongs to real-time traffic requiring real-time communication, is set to have a higher priority than traffic classed as interactive or background, which belongs to a non real-time traffic that does not require real-time communication, and the priority setting unit is configured to set the IP priority by referring to the priority determination table.

In the same field of endeavor Haumont discloses that the control apparatus includes a priority determination table for associating a traffic class with the IP priority, the priority

determination table determines DCP and ToS priority of IP packets based on a traffic class

regarding a Radio Access Bearer, and traffic classed as conversational or streaming, which

belongs to real-time traffic requiring real-time communication, is set to have a higher priority

than traffic classed as interactive or background, which belongs to a non real-time traffic that

does not require real-time communication, and the priority setting unit is configured to set the IP

priority by referring to the priority determination table (see fig. 2, col. 3, ll. 46-67 and col. 5, ll.

49-57).

Therefore it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to combine the teachings of Haumont with the teachings of Widegren in

order to properly configure QoS for applications which may connect through different access and

to different networks.

Consider claim 12, and as applied to claim 11 above, Widegren further teaches that the

transfer path setting request includes a traffic class showing a type of the user data (defined by

the QoS requested, step 2 in figure 18); the transfer path assignment request includes the traffic

class (conversational, streaming, interactive, background; different service code points are

added to the IP packets based on the QoS and before transmission to the core network, see also

figures 8, 9 and 18 and paragraphs 33, 37 and 38).

Consider claim 15, and as applied to claim 11 above, Widegren further teaches a base

station comprising a packet processing unit (inherently taught by the mapping function in the

RNC) configured to regenerate a data packet, based on the user data received from the mobile

station; and the packet processing unit is configured to add the priority to a predetermined field

in the data packet (paragraph 33).

Consider claim 20, Widegren clearly shows and discloses a radio access method for
transferring user data in a radio access network comprising a base station configured to
communicate the user data with a mobile station via a radio channel, and a control apparatus
configured to control the base station, the method comprising:

receiving, at the base station, IP packet including the user data from the mobile
station via the radio channel in the radio access network (e.g. user accesses IP based
services, paragraph 6);

transmitting, at the mobile station, a transfer path setting request for requesting
to set a transfer path of the user data, to a core network via the radio access network
(step 2, Activate PDP Context Request in figure 18 and paragraph 96);

receiving, at the control apparatus, a transfer path assignment request for
requesting to assign the transfer path of the user data, from the core network (RAB
Assignment Request , step 3 in figure 18 and paragraph 97);

setting, at the control apparatus, the transfer path of the user data, in
accordance with the transfer path assignment request (the RNC determines or sets the
radio-related parameters) (figures 8 and 18 and paragraphs 37 and 98)

setting, at the control apparatus, an IP priority for the transfer path such that IP
packet data transmitted from the base station along the transfer path to the control
apparatus is processed according to the IP priority (the RNC determines or sets the
radio-related parameters corresponding to the negotiated QoS attributes which implicitly
carry the priority of the data i.e. how delay sensitive the traffic is) (figures 8 and 18 and
paragraphs 37 and 98);

transmitting, at the control apparatus, to the base station, a radio channel setting request for requesting to set the radio channel, the radio channel setting request including the priority (the RNC has to communicate the base station the parameters that the base station will use in setting up a radio bearer with the mobile station as shown by steps 5 and 6 in figure18 and paragraphs 99 and 100);

setting, at the base station, a priority for the IP packet including the user data based on the IP priority (based on the RAB Assignment Request including the negotiated RAB QoS attributes, the RNC determines the radio-related parameters for the transfer path, see FIG. 18 and paragraph 98); and

transferring, at the base station, to the core network, the IP packet including the user data to the core network according to the IP priority (after steps 1-8 in Fig. 18, a transfer path is set in the core network according to the previously negotiated QoS in the radio access network (steps 9-11 in Fog. 18, paragraphs 103-105).

However Widegren does not expressly disclose storing, at the control apparatus, a priority determination table for associating a traffic class with an IP priority, the priority determination table determines DCP and ToS priority of IP packets based on a traffic class regarding a Radio Access Bearer, and traffic classed as conversational or streaming, which belongs to real-time traffic requiring real-time communication, is set to have a higher priority than traffic classed as interactive or background, which belongs to a non real-time traffic that does not require real-time communication, or that IP priority is set by referring to the priority determination table.

In the same field of endeavor Haumont discloses storing, at the control apparatus, a priority determination table for associating a traffic class with an IP priority, the priority determination table determines DCP and ToS priority of IP packets based on a traffic class regarding a Radio Access Bearer, and traffic classed as conversational or streaming, which belongs to real-time traffic requiring real-time communication, is set to have a higher priority than traffic classed as interactive or background, which belongs to a non real-time traffic that does not require real-time communication, and that IP priority is set by referring to the priority determination table (see fig. 2 , col. 3, ll. 46-67 and col. 5, ll. 49-57).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Haumont with the teachings of Widegren in order to properly configure QoS for applications which may connect through different access and to different networks.

Consider claim 21, and as applied to claim 20 above Widegren clearly shows and discloses that the transfer path setting request includes a traffic class showing a type of the user data (defined by the QoS requested, step 2 in figure 18), the transfer path assignment request includes the traffic class (conversational, streaming, interactive, background; figures 8 and 18 and paragraphs 37, 38 and 96).

5.   Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren, in view of Haumont as applied to claim 15 above, and further in view of Li et al. (Patent no.: US 7,092,727 B1, hereinafter Li).

Consider claim 16, and as applied to claim 15 above, Widegren as modified by Haumont does not explicitly disclose the claimed limitation.

In the same field of endeavor LI discloses a field for defining a priority of the data packet by a common format used in a plurality of networks (Fig. 5B and Col. 12, LL. 20-29).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a predetermined field as disclosed by LI in the system of Widegren as modified by Haumont in order to provide RAN service quality commensurate with an IP network service quality level.

Consider claim 17, and as applied to claim 15 above, Widegren as modified by Haumont does not explicitly disclose the claimed invention.

In the same field of endeavor, LI discloses that the predetermined field is a field for defining any of delay characteristics of the data packet (Fig. 5A and Col. 11, LL. 6-29).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a predetermined field as disclosed by LI in the system of Widegren as modified by Haumont in order to provide RAN service quality commensurate with an IP network service quality level.

6.   Claim 23 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren in view of Haumont as applied to claim 15 above, and further in view of Balachandran et al. (United States Patent Application Publication No.: US 2003/0235196 A1, hereinafter Balachandran).

Consider claim 23, and as applied to claim 15 above, the combination of

Widegren and Haumont does not expressly disclose the claimed limitation.

In the same field of endeavor Balachandran discloses that the base station is

configured to store the data packet into one of a plurality of RAN-side priority

transmission queues according to a priority set for the data packet, and the base station

includes a RAN-side processing unit configured to transmit data packets stored in a

high-priority queue at a rate higher than data packets stored in a low priority queue (Fig.

2 and paragraph 27).

Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to combine the teachings of Balachandran with the

teachings of Widegren and Haumont in order to control the transmission of streaming

data.

7.   Claim 24 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Widegren, in

view of Haumont as applied to claim 15 above, and further in view of Ruutu et al. (United States

Patent Application Publication No.: US 2004/0001491 A1, hereinafter Ruutu).

Consider claim 24, and as applied to claim 15 above, the combination of Widegren and

Haumont does not expressly discloses the claimed limitation.

In the same field of endeavor Ruutu teaches that the control apparatus (IP

router) is configured to store the data packet into one of a plurality of core-side priority

transmission queues according to a priority set for the data packet, and the control

apparatus includes a core-side processing unit configured to transmit data packets

stored in a high-priority queue at a rate higher than data packets stored in a low priority

queue (i.e. using Priority Queuing, paragraphs 60-61).

Therefore it would have been obvious to a person of ordinary skill in the art at the time

the invention was made to incorporate the teachings of Ruutu with the teachings of Widegren

and Haumont in order to configure the scheduling of IP routers in a flexible way.

Response to Arguments

Applicant's arguments filed February 11, 2011 have been fully considered but they are

not persuasive.

8.   The Applicant argues in page 3 of the Remarks/Arguments filed on 02/11/2011 that

Haumont does not disclose that DCP and ToS priority of IP packets are determined based on

traffic class with respect to higher priority traffic and lower priority traffic as described in Claim

11. That even though Haumont describes making routing determinations, there is no disclosure

that these routing determinations are made with respect to designating higher priority traffic and

lower priority traffic as described in Claim 11. The Applicant points out that Haumont describes

mapping of ToS and PDP (see Haumont's Fig. 2), but does not disclose the "priority

determination table" of Claim 11 that determines DCP and ToS priority based on traffic class.

The Applicant further submits that the mappings in Haumont's Fig. 2 do not specific priority, and

thus, these mappings are not the claimed "priority determination table." And that while

Haumont's Fig. 2 refers to interactive, background, and conversational, there is no table defining

any of these classifications in terms of priority.

The Examiner respectfully disagrees. As Applicant has pointed out, Haumont

describes mapping of ToS (Type of Service) and PDP (Packet Data Protocol) context.

As explained in col.3, ll. 50-51 in Haumont, the ToS information corresponds to DiffServ

codepoints (i.e. DCP) and Fig.2 shows that PDP context1 corresponds to interactive

traffic class, PDPcontext 2 corresponds to background traffic class and PDP context 3

corresponds to conversational traffic class. The mappings in Fig. 2 in Haumont are in

terms of priority because the DiffServ codepoints are used to set the priority of a packet

(as evidence see paragraph 29 in Balachandran).

Conclusion

9.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to:**

> Commissioner for Patents
> P.O. Box 1450
> Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

> Customer Service Window
> Randolph Building
> 401 Dulany Street
> Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERMAN VIANA DI PRISCO whose telephone number is (571)270-1781. The examiner can normally be reached on Monday through Friday 8:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/German Viana Di Prisco/   /Rafael Pérez-Gutiérrez/
Examiner, Art Unit 2617   Supervisory Patent Examiner, Art Unit 2617